

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. An apparatus for regulating fluid flow through a spray nozzle, said apparatus comprising a circular chamber defined by spaced apart end walls, a peripheral side wall, a central axis, at least a first inlet at or near said peripheral side wall to allow a flow of fluid to enter said chamber substantially tangential to said peripheral side wall, an outlet exiting through one of said end walls **characterised in that** in use a flow of fluid entering through said first inlet has a primary lower layer that substantially follows a first circular flow path which forms a vortex commencing at or near said peripheral side wall and increases in velocity and pressure towards said outlet and at least one secondary upper layer that substantially follows a second flow path radially inwardly towards said central axis, said primary lower layer and said secondary upper layer interact and support each other over at least a portion of flow between said inlet and said outlet.
2. An apparatus for regulating fluid flow through a spray nozzle as claimed in claim 1, wherein said second flow path of said secondary upper layer is generated by means for generating an inwardly radial flow.
3. An apparatus for regulating fluid flow through a spray nozzle as claimed in claim 2, wherein said apparatus comprises a disc engagable with a spray nozzle housing that in combination define said circular chamber, and one of said spaced apart end walls and said peripheral side wall of said circular chamber form part of said disc, and said means for generating an inwardly radial flow is a narrow annular gap between said disc and said housing, said annular gap being disposed radially outwardly relative to said peripheral side wall.
4. An apparatus for regulating fluid flow through a spray nozzle as claimed in claim 3, wherein the volume of said annular gap is fixed.
5. An apparatus for regulating fluid flow through a spray nozzle as claimed in claim 3, wherein the volume of said narrow gap is variable by movement of said disc relative to said spray nozzle housing along said centrally located housing.

6. An apparatus for regulating fluid flow through a spray nozzle as claimed in claim 1, wherein said outlet is located at or near said centrally located axis.
7. An apparatus for regulating fluid flow through a spray nozzle as claimed in claim 1, wherein said apparatus is a shower head.
8. An apparatus for regulating fluid flow through a spray nozzle as claimed in claim 1, wherein said at least first inlet is a plurality of inlets.
9. An apparatus for regulating fluid flow as claimed in claim 3 wherein the one of said spaced apart end walls that forms part of said disc has a substantially flat portion.
10. An apparatus for regulating fluid flow as claimed in claim 3 wherein the one of said spaced apart end walls that forms part of said disc has at least one substantially curved portion.
11. An apparatus for regulating fluid flow as claimed in claim 1 wherein said apparatus is used to mix different fluids.